ABSTRACT OF THE DISCLOSURE

A turbine engine compressor design utilizing multiple component integration, thereby reducing the number of required engine components. In conventional compressor designs, a multiple component system makes it difficult to predict the structural behaviors due to thermal and mechanical loading during transient conditions. The compressor design of the present invention has three main parts: a forward bearing housing, a bell-mouth (heat shield) and a coupled impeller shroud/diffuser. Such a design achieves the design objectives of the present invention, including reducing weight, reducing cost, minimizing tolerance build up and improving aerodynamic performance by utilizing multiple component integration for multiple modes of engine operation.